

AMENDMENT TO THE CLAIMS

This listing of claims will replace all prior versions of claims in the application.

Listing of Claims:

1-18. (canceled)

19. (currently amended) A method ~~for testing to test~~ a cache, the method comprising:

~~performing a first transaction to cause first data to be stored in a first entry of a cache~~ direct access transaction of a cache to directly select a cache entry for the transaction, the direct access transaction overriding a hit or miss protocol used with the cache when memory transactions are to be performed; and

~~performing a read transaction explicitly specifying said first entry subsequent to performing said first transaction~~; and

~~comparing second data returned in response to said read transaction to said first data to detect if an error occurred in said first entry test by using the selected entry accessed by the direct access transaction~~.

20. (currently amended) The method as recited in claim 19 wherein ~~said first transaction is a write transaction explicitly specifying said first entry~~ the performing the direct access transaction includes selecting a particular way for a next eviction and the performing the test includes performing a selected memory transaction which results in a cache miss evicting an entry of the selected way.

21. (currently amended) The method as recited in claim 19 ~~20~~ wherein ~~said first transaction is a memory transaction having an index of said first entry~~, the method further comprising:

~~performing a second transaction explicitly specifying said first entry prior to performing said first transaction~~; and

~~establishing said first entry as next to be replaced in response to said second transaction~~; and wherein ~~said performing said first transaction comprises~~:

~~detecting a miss in said cache for said first transaction; and selecting said first entry to store said first data responsive to said establishing the performing the test transaction includes performing a read memory transaction, in which data from memory is cached into the entry of the selected way.~~

22. (currently amended) The method as recited in claim 19 21 further comprising ~~storing a tag from said first entry in a register within said cache responsive to said read transaction performing a second direct access transaction to access the entry of the selected way and comparing the cached data to the data in memory.~~

23. (currently amended) The method as recited in claim 22 20 ~~further comprising: performing a second transaction to read said register; and~~
~~comparing said tag to a tag portion of a first address of said first transaction to detect if an error occurred in said first entry wherein the performing the test transaction includes performing a write memory transaction, in which data to be stored in memory is cached into the entry of the selected way.~~

24. (new) The method of claim 23 further comprising performing a second direct access transaction to access the entry of the selected way and comparing the cached data to the data originally selected to be written.

25. (new) The method of claim 20 wherein the performing the test transaction includes performing a memory transaction of test data that results in a miss in the cache and in which the miss causes an eviction and caches the test data into the entry of the selected way.

26. (new) The method of claim 25 further comprising performing a second direct access transaction to access the entry of the selected way and comparing the cached data to the test data for error.

27. (new) The method of claim 26 further including reading a tag of the selected entry with a tag stored in a tag register to compare the two tags for error.

28. (new) A method to reset a cache comprising:

performing a direct access transaction of a cache to directly select a cache entry for the transaction, the direct access transaction overriding a hit or miss protocol used with the cache when memory transactions are to be performed, and the direct access transaction setting an indication that the selected entry is invalid; and

performing a memory transaction to generate a cache miss and to have a predetermined data written into the selected entry by eviction of invalid data to store predetermined data as reset data for the selected entry.

29. (new) The method of claim 28 wherein the performing the direct access transaction includes selecting a selected index and way of a cache line for eviction.

30. (new) The method of claim 29 wherein the performing the direct access and the performing the memory transaction are repeated for entries of the cache to store respective predetermined data in the cache to reset the cache to a known state.

31. (new) A method to synchronize a cache comprising:

performing a direct access transaction of a cache to directly select a cache way to initialize a replacement procedure that is used for cache misses, the direct access transaction used to override a hit or miss protocol used with the cache when memory transactions are to be performed; and

performing subsequent memory transactions, in which way replacement is synchronized to commence from a known initialized way.

32. (new) The method of claim 31 further comprising writing test data into cache starting from the known initialized way.

33. (new) A method to flush a cache comprising:

performing a direct access transaction of a cache to directly select a cache entry to set the cache entry for eviction when cache misses, the direct access transaction used to override a hit or miss protocol used with the cache when memory transactions are to be performed; and

performing a memory transaction to the cache entry, in which the entry is flushed due to the eviction.

34. (new) The method of claim 33 wherein the performing the direct access transaction selects an index and way of the cache and the performing the memory transaction flushes a cache line identified by the memory transaction to memory.

35. (new) The method of claim 34 wherein the cache entry is set for eviction by setting the entry as invalid.

36. (new) The method of claim 34 wherein the cache entry is set for flushing by setting the entry as dirty.